

The Discipline Effects of Fixed Exchange Rates: The Distinction between Hard and Soft Pegs

Abstract

Designing institutions that support discipline regarding inflation and public spending has been a major concern in political economy research. This paper examines the discipline effects of exchange rate institutions, most notably, hard fix and soft peg exchange rate regimes, on monetary and fiscal policy. We argue that while hard fixes place an absolute constraint over domestic monetary policy, soft pegs only change incentive structures and therefore tend to be less effective. By lumping together hard and soft fixes many previous studies have likely overstated the effectiveness of soft fixes in holding down inflation. Using annual data for 31 emerging-market and 32 developing countries during 1990-2003, we present empirical evidence that supports the theoretical presumptions that the discipline effects of hard versus soft pegs differ substantially with respect to money growth and inflation. Our analysis shows that fixed rates of either kind can only have incentive effects on fiscal discipline and that these may operate to either increase or reduce discipline. Thus we do not expect to find strong discipline effects on fiscal policy and this is confirmed by our empirical analysis.

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1. Introduction

Whenever the costs and benefits of an action do not have the same time profiles, decision makers face time-inconsistent incentives (Kydland and Prescott, 1977; Barro and Gordon, 1983). This often creates strong incentives to pursue actions that are beneficial in the short-run but harmful in the long run. Unless we have very long time horizons and considerable self-restraint, we are likely to bias our choices toward actions where the benefits are front loaded and the cost delayed. As a consequence, policymakers often have incentives to implement time-inconsistent policies, which bring short-term economic and political benefits at the cost of longer term economic instability. In the long run, unconstrained domestic monetary and fiscal policies can therefore generate inflationary bias and excessive instability.¹

Given the prevalence of time-inconsistent policy incentives, it is not surprising that there has been much interest in the use of institutional mechanisms to limit the effects of short run political pressures on macroeconomic policies. Considerable support has developed in official circles as well as among economists for the adoption of institutional mechanisms to restrain such tendencies. On the domestic front, central bank independence and inflation targeting have become popular. On the international side, there has been considerable interest in, and use of, fixed or pegged exchange rates as external sources of discipline. The effectiveness of such strategies has been the subject of considerable dispute. There is a substantial body of empirical literature on the effects of alternative exchange rate regimes on macro economic performance.² On economic

¹ See, for example, the analysis and references in Alesina *et al.* (1997), Drazen (2000), Willett (1988), and Willett and Keil (2004).

² See Tavlas, Dellas and Stockman (2008) Klein and Shambaugh(2010) and Rose (2010) for recent general reviews and Ghosh, Gulde and Wolf (2002) on inflation; De Grauwe and Schnabl (2008); Rogoff *et al.*

growth the results are mixed, but on inflation most studies have found that when high income countries are excluded, fixed rates reduce inflation substantially compared with floating rates.³ For example, Bleaney and Fielding (2002) summarize, "[r]ecent work suggests that LDCs which peg their exchange rates achieve lower inflation than those whose exchange rates float..."(pp. 223-4) and Klein and Shambaugh (2010) conclude, "we have shown that inflation is significantly lower when countries peg than when they float."(p. 181)⁴ However, most of these studies have failed to distinguish systematically between hard and soft fixes.⁵

We argue in Section 2 that we should expect substantially different effects from hard and soft fixes on macroeconomic discipline. We argue that too often fixed exchange rate regime are treated as if they were binding constraints whereas this is only true for monetary policy under a hard fix. With monetary policy under a soft peg and fiscal policy under both hard and soft fixes, the exchange rate regime is not an actual constraint. Rather it affects incentive structures. In some cases this can lead to increased discipline and in other cases not. Our theoretical analysis concludes that hard fixes are expected to provide more discipline over monetary policy than soft pegs and that neither type of

(2003); Levy-Yeyati and Sturzenegger (2003); Eichengreen and Leblang (2003) on growth; Kaminsky and Reinhart (1999); Eichengreen and Rose (2000); Husain *et al.* (2005); Angkinand, Chiu and, Willett (2009); Angkinand and Willett (2011) on crises.

³ High income countries are often excluded from such analyses because of their general low inflation rates.

⁴ Rose (2010) expresses skepticism about the robustness of the results of such studies.

⁵ An important exception is Bleaney and Francisco (2005), who do distinguish between hard and soft pegs and find that only the former have significant effects on many growth and inflation in a large sample of developing countries. We find similar results for a somewhat different set of countries and time period and also explore effects on fiscal policy. Bleaney and Fielding (2002) distinguish between unilateral and coordinated pegs and find much lower inflation with the later. Levey-Yeyati and Sturzenegger (2001) distinguish between short duration pegs and those that are held for at least five years and find that only the latter have significant effects on lowering inflation. A few studies such as Edwards (2003) look only at hard fixes, which is perfectly legitimate, but does not give us information on the comparative behavior of soft pegs. Ghosh *et al* (2002) and Jackson and Miles (2008) also present separate results for hard and some types of soft fixes as robustness checks, but do not emphasize these results nor provide any discussion of why we would expect substantial differences in the effects of these different types of regimes.

exchange rate regime is likely to provide strong discipline over fiscal policy. Using annual data from 31 emerging-market and 32 developing countries during 1990-2003, we present evidence that supports these propositions.

The paper is organized as follows. We provide a general overview on the issue of different types of fixed exchange rate regimes as external constraints and incentives for macroeconomic policymaking and hence as a source of macroeconomic discipline in Section 2. Section 3 describes the data, methodology, and the empirical model. Section 4 presents our core empirical results, and Section 5 concludes.

2. Fixed Exchange Rates as External Source of Macroeconomic Discipline: Constraints versus Incentives

A wide range of views can be founded in the literature about the role of exchange rate regimes in promoting macroeconomic discipline. While in some contexts such as discussing currency crises and the bipolar and vanishing middle hypotheses⁶ economists often stress the distinction between hard fixes and soft pegs, in the empirical literature on the effects of exchange rate regimes on macroeconomic discipline this distinction has frequently been ignored or glossed over. For example, while considerable attention has been paid to the propensity of soft pegs to be highly crisis prone relative to hard fixes as analyzed in the literature on the unstable middle and bipolar hypotheses, one still often sees statements implying that any form of peg should be expected to promote discipline. A recent example is given by Husain, Mody, and Rogoff (2005:45) who argue that “[a]n

⁶ See for example Angkinand *et al.* 2009, Willett 2007, and Fischer 2001.

important prediction from economic theory is that exchange rate pegs act as a disciplinary device...” However, as Bleaney and Francisco (2005) emphasize “Pegs differ markedly...in the degree to which regimes are constrained in adjusting these (p. 1457)...It is a purely empirical question whether, in any given form of peg, the costs of devaluation represent a major deterrent to inflation” (p. 1467-8).

Different types of exchange rate regimes can serve as constraints or as incentive mechanisms regarding fiscal and monetary policy. An exchange rate regime that serves as a constraint must meet two conditions. The first and most straightforward condition is that the exchange rate itself cannot be changed. The second condition is that this constrained exchange rate must place an absolute constraint over domestic policy. Since fiscal policy is not linked as tightly to exchange rate policy as is monetary policy, we will argue that this second condition is met with respect to monetary, but not fiscal policy – and even with monetary policy the fixed exchanged rate implies a necessary constraint over monetary only in the long run unless capital mobility is very high. For fiscal policy, even a hard fix implies no direct constraint. Thus we must analyze how fixing the exchange rate affects the incentives for expansionary fiscal policy.

2.1 Monetary Discipline under Hard Fixes

Fixed exchange rates can constrain monetary policy through two different mechanisms. One is the balance of payments constraint. With the possible exception of reserve currency countries, nations cannot run balance of payments deficits indefinitely, as they will run out of means to finance them. This need for eventual adjustment puts a constraint on monetary policy in the long run.

The second type of constraining mechanism occurs when international capital mobility is so high that under a fixed rate a country has no scope for independent monetary policy even in the short run.⁷ With low capital mobility, sterilized intervention can allow some short run monetary autonomy even under a hard fix, but monetary policy would still be subject to the long-run balance of payments constraint.

Under fixed exchange rates and high capital mobility, monetary policy is effectively constrained because any attempt to set interest rates above or below that of the center country would lead to massive capital in- or outflows, which would in turn force domestic interest rates back to the levels of the center country. Consequently, with open capital markets and fixed exchange rates the monetary authorities lose the ability to conduct independent monetary policy. Hard fixes can therefore provide an effective constraint on rates of monetary expansion and inflation, at least in the face of high capital mobility (with imperfect capital mobility even hard fixes do not fully constrain short-run monetary policy in the short run since payments imbalances can be sterilized, allowing some scope for discretionary monetary policy). In other words, with low capital mobility the unholy trinity is a constraint only in the long run while with very high capital mobility it is also a constraint in the short run.

It is true, of course, that there is no such thing as an absolutely permanent fixed exchange rate. Gold standard countries can become fiat currency countries, currency boards can prove brittle, and common currencies can become unbundled. But it must also be pointed out that such events are nearly always disruptive and costly in the extreme – sufficiently so to deter policymakers from taking actions tending make such events more likely except in the most extreme circumstances. Thus these actions, while technically

⁷ This is one of the principal conclusions of the Mundell-Fleming model.

still being available to the policymakers, are outside the set of their reasonable choices except under extreme circumstances, thereby constrained practically rather than literally. Based on these considerations, it seems reasonable to treat hard fixes – by which we mean the gold standard, currency boards, and common currencies – as coming as close to true constraints on changing exchange rates as we have in the real world.

Such hard fixes certainly come much closer to the ideal type of a true constraint than the typical adjustable peg regimes where exchange rates can be adjusted with much greater frequency and at lower cost. Because of this lower cost, along with the ability of policymakers to alter the peg on a discretionary basis, it is surely inappropriate to treat these pegs as anything approaching true constraints. Rather we must analyze how they change the incentive structures facing policymakers.⁸ Adjustable pegs generally increase the perceived political costs of devaluation compared to an equal depreciation under flexible rates since the government is likely to be held more responsible, but as we discuss below, they may also increase the incentives to follow highly expansionary policies in the short run. This leaves their net effects on macroeconomic discipline in doubt and illustrates the need to distinguish between hard and soft fixes. In the next sections we will take up a more detailed discussion of the expected effects of these types of exchange rate regimes on monetary and fiscal discipline.

2.2 Monetary Discipline under Soft Pegs

By monetary discipline we mean avoiding or minimizing the biases that lead to excessive money growth and inflation. In a simple quantity theory world, there would be a one to one relationship between money growth and inflation, but in a modern world

⁸ For more detailed discussion of constraint versus incentive effects see Willett et al. (2008).

with substantial fluctuations in velocity these can give different signals so in our empirical work we use both. We do not attempt to define a specific optimal level of either and there is no small disagreement among economists on issues such as whether one percent inflation is better or worse than two percent. Given the prevalence of higher rates, however, our empirical study is not highly sensitive to such issues. For our purposes lower rates of inflation are considered to reflect greater monetary discipline until we get to very low rates.

Fixing one's currency to that of a low inflation country can be an important source of monetary discipline. As discussed in the previous section, however, this approach greatly limits the scope for independent monetary policy; indeed, in a perfect capital mobility world, the scope is completely eliminated. Since the complete surrender of monetary policy autonomy is viewed as quite costly by most governments, this discipline strategy has been adopted by relatively few countries. Even with a substantial number of countries joining the Euro Zone soft pegs are still the most common form of fixed rates.

These soft fixes are a much weaker commitment technology, because they only affect policymakers' incentives, but do not act as absolute constraints on monetary policy since the pegs can be changed if future political cost-benefit calculations suggest that this is the lower cost option. As mentioned above, with soft pegs the act of devaluing is likely to carry substantial political costs. This is especially true if devaluation has been delayed for some time. Then devaluation is likely to be widely seen as a defeat for the government. The future prospect of such a development can be an important source of discipline, however, it requires governments to give considerable weight to prospective

developments that might not occur for some time. If the government has adopted a short time horizon, due say to strong political pressures, the weight given to such future prospects will be substantially lessened. And against this must be weighted the possibility that in the short run pegged rates may reduce the inflation costs of expansions, giving rise to conflicting incentives. Indeed, adjustable pegs may actually provide incentives to delay necessary adjustments and to play political business cycles.⁹

While theory indicates that adjustable pegs should be less effective at providing discipline than are hard pegs, whether adjustable pegs provide more discipline than flexible exchange rates is indeterminate theoretically. The balance depends on the magnitudes of short run benefits and longer run costs and the discount rate at which they are evaluated, and thus can vary both across countries and time.¹⁰

2.3 Fiscal policy discipline

Time horizons are also important for evaluating the effects of different exchange rate regimes on fiscal discipline, because neither hard fixes, adjustable pegs, nor flexible exchange rates act as constraints on fiscal policy autonomy, but rather only affect incentive structures. Interestingly, hard fixes can actually provide the strongest incentives for profligate fiscal spending in the short run. Even though this type of exchange rate regime raises the long run cost of continued excessive fiscal deficits, it can increase the ease with which deficits can be financed in the short run. When capital mobility is high, expansionary fiscal policy can induce its own financing through capital inflows and a consequent expansion of the domestic money supply under hard fixes. By providing

⁹ See Willett and Mullen (1982), and Rogoff (1985), and Willett (1998).

¹⁰ See Willett et al (2008).

lower cost financing, this can reduce short-run discipline over fiscal policy.¹¹ The recent Greek crisis provides a vivid example. While the market eventually imposed discipline on Greece with a vengeance, it allowed the situation to build over along period of time before a strong alarm was sounded. Argentina in the late 1990s is another example of long delay before the market sounded a strong alarm over Argentina's fiscal policy.

In this context it is important to distinguish between the degree of capital mobility and how rational and farsighted expectations are in financial markets.¹² In models based on the assumption of perfect capital mobility, these two types of considerations are typically combined but in theory it is possible for capital mobility to be high but for the market to not be very farsighted. This appears to also at least sometimes to be the case in practice as well. Argentina provides a vivid example that it is quite possible for a hard fix to provide strong monetary discipline (Argentina's inflation rate fell drastically under currency board) but as discussed above the hard fix and international financial mobility failed to provide strong discipline over fiscal policy. Because the long-run costs are considerable, however, far-sighted governments might decline to take advantage of such short-run opportunities. Thus, the net effect of even hard fixes on fiscal discipline could go either way.

3. Data and Methodology

Since today's debate about using exchange rate regimes as mechanisms to promote macroeconomic discipline focuses primarily on the developing and emerging market economies, our empirical analysis focuses on these countries. We use a panel

¹¹ See Andrews and Willett (1997), Tornell and Velasco (1998 and 2000), and Willett (2000). For a more detailed discussion of the role of capital mobility in the context of macroeconomic discipline mechanisms, see Willett *et al.* (2008).

¹² See Willett *et al.* (2008) and Killen *et al.* (2006).

OLS model with fixed effects which allows us to capture the differences across the various countries in the sample. The estimation period runs from 1990 – 2003, covering 31 emerging-market and 32 developing countries with annual observations, as shown in Table 1. The start and the end year were chosen based on the availability of the *de facto* classification of exchange rate regimes by Bubula and Ötoker-Robe (2002).

*** Table 1 about here ***

There is of course a potentially serious problem of endogeneity that could bias the results against flexible rates, because countries with high inflation usually of necessity adopt some form of floating rates.¹³ Some studies have attempted to address this problem of endogeneity by using different techniques try to get unbiased estimates. For example, Miles (2008) makes a strong case for using the difference-in-differences approach popular in microeconomic studies. A major problem with this approach for macroeconomic issues is finding enough cases where the only highly relevant consideration is the change in regimes.¹⁴ Therefore, we follow the basic approach suggested by Reinhart and Rogoff (2004), who deal with this issue by putting high-inflation countries into a separate category of freely falling rates, and limit our

¹³ For a substantial discussion of this issue see Klein and Shambaugh (2010).

¹⁴ Three of the four cases of changes in exchange rate regimes that Miles considers, for instance, Mexico in 1994-5, Philippines and Thailand in 1997-8, switched their regimes as a result of severe currency crises that lead to substantial increases in inflation. Miles notes this problem but for the Asian countries he deletes only 1997, comparing 1994-96 with 1998-2000. Substantial effects from the crisis were still being felt in 1998, however, thus contaminating his analysis. Another problem with this study is the use of LYS's classifications of exchange rate regimes. These have some severe problems (see Willett et al. (2011)). For example Mexico is classified as having a fixed rate in 1994 (their methodology does not allow the distinction between hard and soft fixes) when it had a crawling band and as having intermediate regimes in 1995 and 1996 when it had gone to a flexible rate.

consideration in our empirical analysis to low and moderate inflation countries.¹⁵ Since there is no general agreement about the threshold at which moderate inflation gives way to high inflation, we use a range of thresholds and fortunately find that our results are not highly sensitive to the particular inflation threshold considered.¹⁶

There is a strong argument for an approach along these lines. High inflation economies usually behave very differently from normal economies (see Heymann and Leijonhufvud 1995). Most of the arguments about time inconsistency problems and discipline mechanisms implicitly assume the existence of moderate inflation rates, so that there is still some degree of stickiness in the adjustments of expectations, the monetary system is still functioning normally and there is a stable enough political situation such that the government has a reasonable degree of short-run discretionary control over policy.¹⁷ It therefore is for moderate inflation countries that the standard analysis of incentives is relevant.¹⁸

We use three different measures for macroeconomic discipline, two for monetary policy discipline and one for fiscal discipline. “Monetary discipline” is measured both as the growth rates of monetary aggregates and as inflation growth as reflected by changes

¹⁵ Of course when this is done the remaining category of non-free falling floating rates is associated with much better macroeconomic performance and a critic could argue that this is just a biased way of making floating look better, but we believe that there are solid reasons for limiting our analysis to countries with moderate inflation rates.

¹⁶ See Hussain et al. (2005) and Rogoff et al. (2003).

¹⁷ In cases where the government is too politically weak to effectively control fiscal policy, the incentive issues first discussed become substantially weakened, if not entirely moot. Under such circumstances, the only form of external discipline that would have any chance of working would be the hardest of fixes. Likewise, without fundamental reforms just legislating central bank independence and/or inflation targeting would have little chance of succeeding.

¹⁸ There are interesting issues, in circumstances of very high inflation rates, concerning whether using exchange rate regimes as nominal anchors can help bring inflation under control faster, but addressing this type of question requires different types of testing than the standard approaches to testing the long run discipline effects of alternative exchange rate regimes and it is this latter question that we are addressing.

in the Consumer Price Index (CPI).¹⁹ Some studies such as Fielding and Bleaney (2000) and Klein and Shambaugh (2010) attempt to distinguish between the narrow effects of discipline in terms of reduced rates of money growth and additional short run credibility effects from changes in inflation given the rate of money growth by including money growth in inflation equations. Because of the potential variability of velocity -- which can affect the rate of money growth leading to a particular rate of inflation -- and the possibility that monetary authorities attempt to take such changes into account, we treat money growth and inflation as two alternative broad measures of monetary discipline and do not attempt to distinguish credibility effects. We believe that the latter is better done via detailed studies of particular episodes.

The measure used for “fiscal discipline” is the cyclically adjusted balance, which controls for the effects of macroeconomic fluctuations (CAB).²⁰ The cyclical adjusted balance is measured as the fiscal balance adjusted to output growth, then divided by GDP and multiplied by 100.²¹

To identify the effects of different exchange rate regimes on macroeconomic discipline, we focus our analysis on the effects of three of the IMF’s six-way classification of exchange rate regimes: hard pegs, adjustable pegs and flexible rates, which are the regimes that are most relevant for the current discussion (Bubula and Ötoker-Robe 2002). We compare these to a separate category of “other regimes”, which

¹⁹ Our data for the fiscal balance and the US Treasury bill interest rate were obtained from the International Monetary Fund’s International Financial Statistics (IFS). With the exception of the crisis index, all other variables were obtained from the World Bank’s World Development Indicators (WDI). The terms of trade data was obtained from WDI, but augmented where necessary with data from IFS. For more discussion on the crisis index, see Chiu and Willett (2009).

²⁰ A better measure would be the cyclically adjusted *primary* fiscal balance; however, this variable was not readily available since a number of countries do not report interest payments. The cyclical adjustment is performed to ensure that the fiscal discipline captures the results of changes in policy rather than mere fluctuations in economic conditions.

²¹ For more details on how the adjustment is done, see Dechsakulthorn (2007).

includes the remaining IMF classifications: crawling pegs and bands, backward-looking crawling pegs and bands.²² We further differentiate flexible exchange rate regimes into two types of regimes: “narrow float” and “broad float”. The IMF classification designates three categories of floats, determined in part by staff judgments about how heavily they are managed. It is not clear *a priori* whether for our purposes the IMF’s middle category of floating, labeled “managed floating” would more appropriately be included in our floating group or in our “other” group. Thus we estimate it both ways, including it as a float regime in our “broad float” category and excluding it from our “narrow float” category (which includes only those regimes classified by the IM as independent floats). Using this type of grouping of the fine classification allows us to retain all of our observations while allowing us to put more focus on the regimes covered by our hypotheses and to put less focus on most of the very high inflation observations.²³ “Other regimes” are used as the default regime, and hence the coefficient for each exchange rate regime is interpreted as the difference in performance between the particular regime and “other regimes”. We expect to see differences between hard fixes and soft pegs in terms of providing monetary discipline such that hard fixes provide stronger discipline effects than soft pegs. On the fiscal side, we do not expect to see large differences across various regimes in providing fiscal discipline.²⁴

²² This differs from Bleaney and Francisco who include crawling pegs and bands in their soft peg groups. We choose to focus on our analysis on the difference between hard and adjustable pegs since the theoretical considerations related to crawling pegs and bands are less clear cut.

²³ Most managed floats are less likely to subject to this particular type of endogeneity than are floating rates.

²⁴ It should be noted that while our theoretical sections take a broad view, our empirical study is necessarily narrow in scope, focusing almost exclusively on the differences in the effects of hard and soft pegs on discipline. For example, while capital mobility is presented in the theory section as an important part of the exchange rate regime/discipline story, it is not included as a part of our empirical analysis. Inflation targeting and central bank independence are two more examples of factors which can certainly be expected to matter in studies of this kind, yet which we do not include in the analysis presented herein. Since our purpose in this paper is to emphasize that there is an important difference between the effects of hard and soft pegs, the

Growing recognition that official exchange rate regime classifications are frequently misleading has led to a number of recent efforts to develop behavioral classifications. These have been quite valuable, but the statistical methodology used by Levy-Yeyati and Sturzenegger (2005) does not allow them to make a distinction between hard and soft fixes. The classification developed by Reinhart and Rogoff (2004) does present the distinction between hard and soft pegs in its fine grained version but most empirical work to date based on the data set has used their broader categories that do not distinguish between hard and soft fixes.²⁵

We also control for a standard set of economic variables in order to minimize omitted variable bias. These variables include: the degree of openness, measured by a ratio of imports and exports to GDP; the terms of trade; real GDP growth; changes in US 3-month Treasury bill interest rate; and a currency crisis index.²⁶ We include trade openness, measured as the ratio of exports and imports to GDP, in response to the argument by Romer (1993) that trade openness reduces inflation in the non-industrial

empirical treatment of the aforementioned factors in the context of exchange rate regimes and discipline has accordingly been set aside for future research.

²⁵ There are other problems as well with these measures. Reinhart and Rogoff look only at the behavior of exchange rates, and thus cannot distinguish between low levels of movement in exchange rates caused by stable underlying conditions and those caused by heavy intervention. This may be why they classified Canada as having a crawling regime during a period in which they were clearly floating. Levy-Yeyati and Sturzenegger do control for changes in reserves, but the methods they use to distinguish high versus low volatilities lack a clear economic rationale and result in some serious misclassifications such as treating Korea as a fixed rate during a period when it was floating. Of course, the new IMF classifications are not entirely trouble free but for our purposes we believe that they are the most accurate of the three. For further discussion of these three classification schemes, see Rose (2007) and Willett *et al* (2011).

²⁶ The crisis index is measured by exchange market pressure indices, which are computed based on the weighted averages of domestic currency depreciation or appreciation, changes in international reserves, and changes in interest rates. We use an equally-weighted index and employ a two standard deviation threshold for crisis identification. Our explanatory variables are lagged by one period in order to capture both current economic situations and the information that policymakers took into account when choosing monetary and fiscal policies. The exceptions are our openness and crisis index measures, which are included without lags in order to avoid serial correlation problems.

countries.²⁷ A more recent study by Alfaro (2005), however, does not find a negative effect of openness on inflation when measures of exchange rate regimes are included. She finds that fixed rates are associated with lower inflation, but does not distinguish between hard and soft fixes.

The empirical model can be summarized as:

$$Y_{i,t} = \alpha Y_{i,t-1} + X'_{it} \beta + v_i + \varepsilon_{i,t} \quad i=1, \dots, N, t=1, \dots, T$$

where $Y_{i,t-1}$ are our macroeconomic variables monetary and fiscal discipline taking one year lag. X is a set of exchange rate regime dummy variables, which takes a value of 1 if country i adopts a particular exchange rate regime and 0 otherwise. v is a set of control variables as mentioned above and $\varepsilon_{i,t}$ is the error term.

4. Empirical Results

As is indicated in the theoretical sections, there are a number of sometimes conflicting considerations relevant to the evaluation of alternative exchange rate regimes as a source of discipline. The sharpest conclusion that we can draw is that we would expect to see significant differences between hard and soft pegs on rates of money growth and inflation. The other relationships are theoretically indeterminate. While we are doubtful that adjustable pegs will provide strong discipline over either monetary or fiscal policies, these are empirical issues that need to be investigated.

²⁷ In future research it would be useful to include central bank independence and central bank transparency as control variables (On measures of central bank transparency see Cukierman et al. (1992) and Crujisen and Eijffinger (2010). Unfortunately, for developing countries the institutional measures of central bank independence often do not have a very close correspondence to the actual degree of independence (Hayo and Hefeker 2010). The best available measure for these countries is generally considered to be the turnover rates of heads of central banks (for an excellent review of the relevant literature, see Berger *et al* 2001a).

Our empirical results are reported in Tables 2 through 8. Table 2 presents the results on the effects of different exchange rate regimes on M2 growth, inflation rates, and fiscal balance, respectively over the full range of inflation rates. Model 1 uses the narrower definition of flexible regimes, while Model 2 incorporates the broader category of flexible regimes. Results with various inflation thresholds are reported in Tables 3 through 8.

The results for the effects of different exchange rate regimes on inflation rates strongly support our theoretical argument that it is quite important to distinguish between hard and soft pegs. For the full sample as shown in columns (1)-(4) of Table 4, the estimates find that hard fixes are associated with inflation rates two to three percentage points lower than adjustable pegs with little systematic variation across the different inflation thresholds. This relationship also holds up for the full sample without a threshold (columns (4)-(6) in both model 1 and 2, Table 2), with the differences in coefficients generally remaining in the two to three percentage points range, but increasing to over four percent for developing countries. In general, the results are quite similar for the emerging market and developing country samples.

The difference found between the adjustable or soft pegs and floating rates are typically smaller and show more variability across the estimates. As shown in column (1) of Table 4, for example, using the narrow definition of floating regimes the estimates for inflation rates under floating are typically about one percentage point less than under adjustable pegs for the full sample. This is driven by the results for emerging markets with the differences being small and showing no consistent patterns across the thresholds for the developing countries.

As might be expected, when we use the broad measures of floating including managed floating, the differences from the adjustable peg generally become quite small. As shown in Table 7, on average inflation is a little lower with the floats than with adjustable pegs, but the differences approach one percentage point only when the inflation threshold is raised to 50 percent (columns (4), (8), and (12)). Not surprisingly we find the same general patterns with M2 growth as with inflation, but with the differences in magnitudes being greater as shown in Table 6. Growth rates under hard fixes are typically four to five percentage points lower than under adjustable pegs, while narrow floats typically have money growth two to three percentage points lower than pegs. With broad floats, however, the differences between floats and pegs become quite small.

The effects of different exchange rate regimes on fiscal policy discipline are in line with our expectations. We fail to find significant differences among hard fixes, soft pegs, and floats (both in the narrower and boarder sense) in terms of providing discipline when inflation thresholds are not applied. The exception to this finding is a weakly significant pro-disciplinary effect of narrowly floating rates for emerging market countries (see Table 2, Model 1, column 8). When inflation thresholds are applied (as they are in Tables 5 and 8), we find this phenomenon to be consistent for emerging markets when floating rates are narrowly defined (see columns 5 through 8 in Table 5). When the definition of a floating rate is expanded to the broader Model 2 form, this effect vanishes (see columns 5 through 8 in Table 8). None of our exchange rate regime specifications appear to exert any significant pro- or anti-disciplinary influence over

fiscal balance in developing countries (see columns 9 through 12 in Tables 5 and 8). This is consistent with the findings of Tornell and Velasco (1998, 2000).

It is noteworthy that when emerging and developing countries are combined into the full pooled sample, adjustable pegs tend to exert a pro-disciplinary influence over fiscal balance (see columns 1 through 4 of Tables 5 and 8); this is most pronounced when floating regimes are most narrowly defined, as in Table 5. It is unclear whether this finding reflects a true relationship between adjustable peg regimes and fiscal discipline or is merely indicative of idiosyncrasies of the subsamples when combined, as it is muted in both subsamples and only arises when inflation thresholds are applied. Additional data is required to make a sound determination on this point.

To sum up, our results generally support our argument that there exist significant differences between hard and soft pegs' disciplinary effects on rates of money growth and inflation; they also give some justification for our belief that the distinction between the effects of constraints and incentives is a meaningful one. They further underscore the imprudence of treating all types of pegged exchange rate regimes as one in empirical studies. Our results for fiscal discipline are less dramatic, but this conforms to our expectations that exchange rate regimes cannot be expected to provide strong discipline over fiscal policy. The differences in fiscal positions across the alternative exchange rate regimes are small as we expected, seldom exceeding 0.5 percent of GDP. That having been said, there is reason to believe that emerging market countries can see some disciplinary influence over fiscal deficits by the adoption of a freely floating exchange rate regime.

5. Concluding Remarks

The analysis in this paper suggests that it is important to clearly distinguish in empirical analyses between hard and soft fixes, with only the former providing strong discipline over monetary expansion and inflation in comparison with both soft pegs and flexible rates. The disciplinary advantage of hard fixes over soft pegs is not a trivial one; money growth and inflation are decreased by hard peg regimes by between 3 – 5% more than by adjustable peg regimes. While soft pegs do increase the long run costs of expansionary macroeconomic policies by increasing the risk of future depreciation, they also increase the short run benefits of such expansions, so that there is no general theoretical prediction about which regime would be more inflation prone. While higher time discount rates increase time-inconsistency problems and hence the need for disciplinary mechanisms, they also reduce the effectiveness of soft pegs as a technology to provide such discipline. Our empirical results confirm that soft pegs do not on average provide more discipline over monetary policy and inflation than do flexible rates.

Our results with respect to fiscal discipline are inconclusive, but as our theoretical analysis suggests that the disciplinary effects of exchange rate regimes depend crucially on outside factors such as the degree of capital mobility and the farsightedness of markets, this is unsurprising. As noted earlier, emerging market countries seeking to restrain fiscal profligacy may see some disciplinary effects from a freely floating exchange rate regime. In the broadest of strokes, our overall conclusion is that only hard fixes provide a reliable external source of discipline – and that only over monetary policy.

Effects on discipline are far from the only criteria which are relevant for the choice of exchange rate regimes. Leaving aside considerations of discipline imposition,

hard fixes make sense only for countries that can sufficiently closely meet the conditions delineated in the literature on optimum currency areas. There can be considerable disagreement among economists over the application of OCA criteria. The list of criteria has risen into double figures and there is no general consensus about their relative importance. Furthermore, there is clearly more scope for meeting these conditions *ex post* rather than *ex ante*, and it is the *ex post* situation that is relevant. Thus some economists have suggested that almost any group of countries can endogenously meet the OCA criteria *ex post*. Such a view, however, requires not only that the endogenous responses be in the right direction but that they also be extremely powerful. The recent crisis in the Euro Zone suggests the limits of such responses, at least in the medium term.²⁸

Thus, proposals for most countries to adopt hard fixes to establish monetary discipline are not advisable.²⁹ But for small open economies with considerable domestic flexibility, a hard fix to a large and prudent neighbor can be an attractive option. For countries facing substantial capital mobility attempting to have one's cake and eat it too via a soft peg is likely to be a recipe for a currency crisis rather than monetary discipline (in developing countries with low capital mobility soft pegs have not been found to be so crisis prone). Inflation targeting seems to provide a more attractive approach to offering monetary discipline for larger countries. With respect to fiscal policy, no type of exchange rate regime appears to generally provide a strong mechanism for assuring fiscal discipline. Other approaches need to be tried.³⁰

²⁸ On the Euro experience see the analysis and references in Willett, Permpoon, and Wihlborg (2010).

²⁹ Recent example of such proposals includes Hausmann et al. (2000) and Steil and Litan (2006). For a recent set of analyses of the dollarization debate, see Salvatore *et al* (2003).

³⁰ Of course the Europe's Growth and stability pact was not successful either.

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Table 1 Country List

31 Emerging Economies	Argentina	Latvia
	Bolivia	Lithuania
	Brazil	Malaysia
	Chile	Mexico
	China	Morocco
	Colombia	Pakistan
	Czech Republic	Peru
	Egypt	Philippines
	Estonia	Poland
	Hong Kong	Russia
	Hungary	Singapore
	India	South Africa
	Indonesia	Thailand
	Israel	Turkey
	Jordan	Venezuela
	Korea	
32 Developing Economies	Algeria	Nepal
	Bahrain	Nigeria
	Bangladesh	Panama
	Belarus	Paraguay
	Botswana	Romania
	Bulgaria	Slovakia
	Cameroon	<i>Slovenia</i>
	Costa Rica	Sri Lanka
	Côte d'Ivoire	Syria
	Ecuador	Tanzania
	El Salvador	Tunisia
	Ghana	Ukraine
	Kazakhstan	Uruguay
	Kenya	Vietnam
	Lebanon	Yemen, Republic of
	Macedonia, FYR	Zimbabwe

* Emerging countries are those that are included in the 2005 Morgan Stanley Capital International (MSCI) index, but not identified as developed economies (Hong Kong and Singapore are the exceptions). Taiwan, an emerging economy, is excluded from the sample because of its data unavailability. Bolivia, Estonia, Latvia and Lithuania are also the exceptions and are included here as emerging-market economies.

Table 2. WITHOUT INFLATION THRESHOLDS

	Table 2. WITHOUT INFLATION THRESHOLDS																	
	Model 1									Model 2								
	M2 Growth			Inflation			Fiscal Balance			M2 Growth			Inflation			Fiscal Balance		
	Full Sample	Emerging Markets	Developing Countries	Full Sample	Emerging Markets	Developing Countries	Full Sample	Emerging Markets	Developing Countries	Full Sample	Emerging Markets	Developing Countries	Full Sample	Emerging Markets	Developing Countries	Full Sample	Emerging Markets	Developing Countries
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
M2 Growth (t-1)	0.551*** (17.211)	0.602*** (15.762)	0.366*** (6.294)	--	--	--	--	--	--	0.549*** (16.971)	0.579*** (14.803)	0.366*** (6.309)	--	--	--	--	--	--
Hard Peg (t-1)	-5.480** (-2.441)	-7.800* (-1.916)	-4.789 (-1.575)	-2.785* (-1.947)	-3.807 (-1.422)	-2.502 (-1.257)	0.211 (0.729)	0.695 (1.469)	0.089 (0.181)	-6.069** (-2.516)	-9.454** (-2.307)	-2.893 (-0.856)	-3.948*** (-2.576)	-4.673* (-1.714)	-3.955* (-1.782)	0.220 (0.708)	0.694 (1.434)	0.084 (0.158)
Adj. Peg (t-1)	-1.269 (-0.827)	-4.794** (-2.545)	4.422 (1.632)	0.663 (0.679)	0.043 (0.035)	2.230 (1.240)	0.059 (0.292)	0.271 (1.164)	-0.621 (-1.419)	-1.886 (-1.072)	-8.102*** (-3.586)	6.027** (1.987)	-0.462 (-0.413)	-1.117 (-0.750)	0.707 (0.352)	0.074 (0.317)	0.356 (1.264)	-0.554 (-1.147)
Narrow Float (t-1)	-2.705 (-1.404)	-5.319** (-2.476)	6.253 (1.522)	-0.065 (-0.053)	-0.304 (-0.219)	3.493 (1.289)	0.246 (1.008)	0.455* (1.813)	-0.400 (-0.622)	--	--	--	--	--	--	--	--	--
Trade Openness (t-1)	-0.165 (-0.134)	1.193 (0.801)	3.611 (0.993)	-1.199 (-1.515)	-1.071 (-1.092)	-0.882 (-0.362)	0.290* (1.789)	0.554*** (3.093)	-0.381 (-0.648)	0.236 (0.194)	2.438* (1.648)	2.535 (0.705)	-1.098 (-1.410)	-0.808 (-0.818)	-1.197 (-0.495)	0.257 (1.605)	0.476*** (2.642)	-0.314 (-0.557)
Term of Trade (t-1)	0.003 (0.139)	-0.012 (-0.209)	-0.003 (-0.130)	-0.009 (-0.714)	-0.029 (-0.738)	-0.012 (-0.846)	0.003 (1.229)	-0.011 (-1.511)	0.004 (1.294)	0.003 (0.175)	0.034 (0.572)	-0.000 (-0.013)	-0.009 (-0.713)	-0.020 (-0.517)	-0.013 (-0.905)	0.003 (1.209)	-0.013* (-1.807)	0.004 (1.315)
Real GDP Growth (t-1)	-0.122 (-1.320)	-0.057 (-0.317)	-0.078 (-0.715)	-0.075 (-1.273)	0.155 (1.283)	-0.137* (-1.736)	0.042*** (3.476)	0.076*** (3.510)	0.033** (2.056)	-0.120 (-1.295)	-0.033 (-0.188)	-0.060 (-0.548)	-0.088 (-1.489)	0.135 (1.133)	-0.156* (-1.941)	0.041*** (3.422)	0.072*** (3.342)	0.034** (2.133)
U.S. T-Bill Rate (t-1)	-0.005 (-0.242)	0.008 (0.289)	-0.027 (-0.750)	0.004 (0.280)	0.021 (1.176)	-0.027 (-1.131)	-0.001 (-0.432)	-0.000 (-0.113)	-0.001 (-0.176)	-0.005 (-0.219)	0.003 (0.098)	-0.026 (-0.720)	0.002 (0.149)	0.019 (1.066)	-0.030 (-1.235)	-0.001 (-0.478)	-0.000 (-0.108)	-0.001 (-0.164)
Fiscal Balance (t-1)	-0.553*** (-3.470)	-0.997*** (-3.843)	-0.633*** (-2.856)	-0.056 (-0.543)	-0.103 (-0.574)	-0.071 (-0.492)	0.420*** (10.131)	0.348*** (6.564)	0.460*** (6.840)	-0.556*** (-3.483)	-1.074*** (-4.175)	-0.675*** (-2.984)	-0.031 (-0.305)	-0.129 (-0.720)	0.009 (0.059)	0.420*** (10.110)	0.349*** (6.550)	0.463*** (6.864)
Crisis Index (t-1)	1.630 (0.799)	2.045 (0.798)	1.430 (0.447)	4.111*** (3.174)	4.789*** (2.912)	3.308 (1.555)	0.412 (1.464)	0.050 (0.156)	1.012** (1.969)	1.877 (0.918)	3.365 (1.314)	1.551 (0.486)	4.283*** (3.312)	5.037*** (3.059)	3.290 (1.544)	0.394 (1.395)	-0.014 (-0.043)	1.001* (1.938)
Broad Float (t-1)	--	--	--	--	--	--	--	--	--	-1.957 (-1.246)	-6.726*** (-3.374)	4.312* (1.679)	-1.876* (-1.871)	-1.749 (-1.333)	-1.756 (-1.033)	0.110 (0.535)	0.288 (1.191)	-0.055 (-0.137)
Inflation (t-1)	--	--	--	0.808*** (33.197)	0.842*** (25.453)	0.750*** (10.839)	-0.008* (-1.888)	-0.007 (-1.527)	-0.011 (-1.163)	--	--	--	0.799*** (32.386)	0.828*** (24.076)	0.750*** (10.802)	-0.008* (-1.843)	-0.007 (-1.411)	-0.011 (-1.159)
Inflation (t-2)	--	--	--	-0.035*** (-11.056)	-0.037*** (-10.646)	-0.018 (-0.271)	--	--	--	--	--	--	-0.035*** (-11.027)	-0.036*** (-10.412)	-0.017 (-0.249)	--	--	--
Fiscal Balance (t-2)	--	--	--	--	--	--	0.378*** (9.914)	0.398*** (8.307)	0.358*** (5.691)	--	--	--	--	--	--	0.379*** (9.967)	0.402*** (8.377)	0.359*** (5.694)
Constant	7.500*** (2.846)	7.582 (1.191)	5.715 (1.464)	3.775** (2.239)	4.350 (1.038)	4.161 (1.562)	-1.017*** (-2.976)	-0.087 (-0.112)	-0.443 (-0.719)	7.745*** (2.837)	4.917 (0.796)	4.426 (1.074)	5.001*** (2.858)	4.509 (1.104)	6.092** (2.164)	-0.996*** (-2.792)	0.173 (0.226)	-0.508 (-0.789)
R-Squared (overall)	0.473	0.601	0.300	0.752	0.788	0.712	0.821	0.836	0.815	0.473	0.608	0.302	0.754	0.790	0.711	0.820	0.835	0.815
Number of observations	488	290	198	488	290	198	455	271	184	488	290	198	488	290	198	455	271	184
Chi-Squared Statistic	428.326	420.391	80.065	1,443.569	1,035.337	460.249	2,028.436	1,317.422	608.627	427.531	433.278	80.774	1,457.679	1,043.505	458.198	2,024.374	1,306.194	674.255
Degrees of Freedom	10	10	10	11	11	11	11	11	11	10	10	10	11	11	11	11	11	11

note: *** p<0.01, ** p<0.05, * p<0.1

Table 3. Model 1, M2 Growth WITH INFLATION THRESHOLDS

	<i>Full Sample</i>				<i>Emerging Markets</i>				<i>Developing Countries</i>			
	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
M2 Growth (t-1)	0.363*** (9.134)	0.380*** (11.293)	0.384*** (11.622)	0.396*** (12.125)	0.439*** (8.467)	0.402*** (11.023)	0.400*** (10.880)	0.418*** (11.959)	0.252*** (3.776)	0.280*** (4.142)	0.299*** (4.460)	0.310*** (4.639)
Hard Peg (t-1)	-7.183*** (-4.797)	-5.702*** (-3.462)	-4.835*** (-2.894)	-5.238*** (-2.990)	-7.107*** (-2.907)	-5.459** (-2.169)	-5.599** (-2.101)	-6.441** (-2.315)	-9.541*** (-3.905)	-7.171*** (-2.615)	-5.007* (-1.849)	-5.036* (-1.782)
Adj. Peg (t-1)	-1.619 (-1.544)	-0.829 (-0.723)	-0.717 (-0.608)	-0.734 (-0.601)	-2.200* (-1.949)	-2.554** (-2.105)	-2.375* (-1.867)	-2.674** (-2.013)	0.473 (0.190)	3.395 (1.340)	3.931 (1.523)	4.588* (1.773)
Narrow Float (t-1)	-3.389** (-2.543)	-3.674** (-2.538)	-3.120** (-2.137)	-3.873** (-2.554)	-4.049*** (-3.105)	-4.733*** (-3.400)	-4.587*** (-3.180)	-5.562*** (-3.744)	1.802 (0.485)	1.074 (0.280)	2.395 (0.635)	2.036 (0.519)
Trade Openness (t-1)	-0.959 (-1.173)	-0.977 (-1.077)	-1.101 (-1.180)	-1.215 (-1.247)	-1.109 (-1.215)	-1.222 (-1.252)	-1.642 (-1.592)	-1.877* (-1.759)	6.201** (2.088)	4.435 (1.351)	3.550 (1.076)	3.260 (0.960)
Term of Trade (t-1)	-0.001 (-0.119)	-0.005 (-0.381)	-0.006 (-0.381)	-0.008 (-0.551)	-0.052 (-1.272)	-0.066 (-1.563)	-0.047 (-1.080)	-0.042 (-0.941)	0.004 (0.270)	-0.001 (-0.061)	-0.003 (-0.170)	-0.006 (-0.308)
Real GDP Growth (t-1)	0.213*** (3.124)	0.055 (0.779)	0.004 (0.052)	-0.005 (-0.070)	0.255** (1.966)	0.173 (1.367)	0.012 (0.095)	-0.063 (-0.485)	0.156 (1.639)	0.010 (0.104)	-0.020 (-0.201)	0.002 (0.020)
U.S. T-Bill Rate (t-1)	0.006 (0.354)	-0.008 (-0.461)	-0.009 (-0.522)	-0.016 (-0.910)	-0.003 (-0.149)	-0.005 (-0.276)	-0.006 (-0.325)	-0.009 (-0.480)	0.018 (0.594)	-0.011 (-0.344)	-0.009 (-0.264)	-0.018 (-0.524)
Fiscal Balance (t-1)	-0.226** (-2.008)	-0.306** (-2.545)	-0.303** (-2.451)	-0.309** (-2.401)	-0.252 (-1.514)	-0.312* (-1.776)	-0.238 (-1.285)	-0.185 (-0.964)	-0.347* (-1.759)	-0.505** (-2.494)	-0.542*** (-2.635)	-0.602*** (-2.841)
Crisis Index (t-1)	3.156** (2.026)	3.220* (1.952)	4.629*** (2.811)	3.899** (2.327)	2.645 (1.576)	2.341 (1.298)	5.113*** (2.851)	3.942** (2.132)	2.217 (0.728)	3.447 (1.120)	3.381 (1.076)	3.457 (1.112)
Constant	9.423*** (5.001)	10.353*** (5.118)	10.511*** (5.077)	11.109*** (5.166)	13.359*** (2.928)	16.493*** (3.535)	15.617*** (3.269)	15.914*** (3.268)	5.440* (1.689)	6.574* (1.862)	6.709* (1.902)	6.962* (1.896)
R-Squared (overall)	0.331	0.335	0.329	0.340	0.434	0.474	0.458	0.479	0.300	0.254	0.238	0.244
Number of observations	395	437	453	463	239	260	271	274	156	177	182	189
Chi-Squared Statistic	190.341	214.452	216.297	232.660	174.896	224.657	219.832	241.977	62.100	56.395	53.539	57.489
Degrees of Freedom	10	10	10	10	10	10	10	10	10	10	10	10

Notes: All models are estimated using Panel OLS models with fixed effects. T-statistics are provided in parentheses below the coefficients. Models 1 and 2 use specifications of floating rates that respectively exclude (narrow) or include (broad) managed floats in the floating rate dummy variable. All varieties of crawling rates are combined (with managed floats, in Model 1 estimations) into an "Other Regimes" variable and dropped from the analysis in order to avoid matrix singularity. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Model 1, Inflation WITH INFLATION THRESHOLDS

	Table 4. Model 1, Inflation WITH INFLATION THRESHOLDS											
	<i>Full Sample</i>				<i>Emerging Markets</i>				<i>Developing Countries</i>			
	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Inflation (t-1)	0.494*** (18.409)	0.471*** (19.840)	0.512*** (20.917)	0.600*** (24.419)	0.630*** (19.116)	0.472*** (15.788)	0.567*** (17.689)	0.608*** (19.973)	0.378*** (6.874)	0.508*** (9.474)	0.479*** (8.852)	0.552*** (8.622)
Inflation (t-2)	-0.010*** (-5.598)	-0.018*** (-9.431)	-0.021*** (-9.406)	-0.024*** (-10.113)	-0.013*** (-8.194)	-0.018*** (-8.396)	-0.023*** (-9.622)	-0.024*** (-10.050)	0.006 (0.181)	-0.026 (-0.620)	-0.026 (-0.525)	-0.000 (-0.000)
Hard Peg (t-1)	-3.079*** (-5.247)	-3.314*** (-3.633)	-3.104*** (-3.139)	-3.032*** (-3.045)	-3.066*** (-3.251)	-4.553*** (-3.405)	-5.031*** (-3.179)	-5.032*** (-3.132)	-3.826*** (-4.536)	-2.932*** (-2.598)	-2.285* (-1.725)	-2.376 (-1.482)
Adj. Peg (t-1)	-0.481 (-1.177)	-0.381 (-0.651)	-0.688 (-1.023)	-0.310 (-0.446)	-0.453 (-1.068)	-1.177* (-1.840)	-0.776 (-1.041)	-0.753 (-0.993)	0.215 (0.245)	0.561 (0.527)	0.079 (0.061)	1.461 (0.971)
Narrow Float (t-1)	-0.748 (-1.495)	-1.690** (-2.458)	-1.350* (-1.685)	-1.371 (-1.591)	-0.273 (-0.560)	-2.183*** (-3.016)	-1.775** (-2.124)	-1.681** (-1.999)	0.519 (0.398)	0.320 (0.200)	1.074 (0.575)	0.108 (0.048)
Trade Openness (t-1)	-0.763** (-2.305)	-1.745*** (-3.375)	-2.217*** (-3.921)	-1.950*** (-3.497)	-0.492 (-1.411)	-1.660*** (-3.269)	-2.114*** (-3.542)	-1.969*** (-3.257)	1.880* (1.802)	-0.010 (-0.007)	-1.772 (-1.079)	-2.239 (-1.130)
Term of Trade (t-1)	0.001 (0.270)	-0.006 (-0.941)	-0.011 (-1.425)	-0.011 (-1.320)	-0.016 (-1.050)	-0.044** (-1.983)	-0.071*** (-2.786)	-0.056** (-2.200)	0.001 (0.262)	-0.004 (-0.508)	-0.009 (-0.986)	-0.010 (-0.901)
Real GDP Growth (t-1)	0.004 (0.159)	0.010 (0.315)	0.008 (0.200)	-0.003 (-0.073)	0.113** (2.497)	0.011 (0.163)	0.007 (0.099)	-0.033 (-0.446)	-0.033 (-0.908)	0.001 (0.025)	0.011 (0.200)	0.000 (0.005)
U.S. T-Bill Rate (t-1)	0.001 (0.147)	0.008 (1.123)	0.006 (0.669)	-0.004 (-0.409)	0.005 (0.821)	0.011 (1.211)	0.015 (1.361)	0.012 (1.075)	-0.006 (-0.591)	0.004 (0.283)	0.002 (0.141)	-0.020 (-0.982)
Fiscal Balance (t-1)	-0.061 (-1.337)	-0.020 (-0.295)	0.049 (0.658)	0.039 (0.527)	-0.108* (-1.671)	-0.030 (-0.313)	0.089 (0.801)	0.079 (0.696)	-0.075 (-1.079)	-0.029 (-0.340)	0.008 (0.082)	-0.027 (-0.225)
Crisis Index (t-1)	2.046*** (3.566)	2.620*** (3.560)	3.459*** (4.006)	3.712*** (3.897)	1.887*** (3.038)	1.799* (1.916)	3.852*** (3.708)	4.023*** (3.871)	1.705 (1.593)	3.076** (2.388)	2.904* (1.864)	3.267* (1.807)
Constant	3.481*** (4.810)	6.229*** (6.460)	7.270*** (6.451)	6.353*** (5.202)	3.282* (1.884)	10.195*** (4.130)	12.899*** (4.528)	11.029*** (3.896)	2.658** (2.233)	4.368*** (2.865)	6.888*** (3.801)	6.352*** (2.899)
R-Squared (overall)	0.608	0.619	0.613	0.646	0.741	0.648	0.686	0.731	0.507	0.600	0.537	0.567
Number of observations	395	437	453	463	239	260	271	274	156	177	182	189
Chi-Squared Statistic	556.725	598.248	613.851	823.698	647.812	456.159	565.118	710.668	148.222	247.751	197.210	231.948
Degrees of Freedom	11	11	11	11	11	11	11	11	11	11	11	11

Notes: All models are estimated using Panel OLS models with fixed effects. T-statistics are provided in parentheses below the coefficients. Models 1 and 2 use specifications of floating rates that respectively exclude (narrow) or include (broad) managed floats in the floating rate dummy variable. All varieties of crawling rates are combined (with managed floats, in Model 1 estimations) into an "Other Regimes" variable and dropped from the analysis in order to avoid matrix singularity. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Model 1, Fiscal Balance WITH INFLATION THRESHOLDS

	<i>Full Sample</i>				<i>Emerging Markets</i>				<i>Developing Countries</i>			
	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Fiscal Balance (t-1)	0.471*** (9.511)	0.465*** (10.502)	0.465*** (10.605)	0.457*** (10.406)	0.298*** (5.032)	0.317*** (5.676)	0.318*** (5.772)	0.331*** (5.948)	0.864*** (9.582)	0.681*** (9.240)	0.689*** (9.363)	0.643*** (8.626)
Fiscal Balance (t-2)	0.306*** (6.948)	0.320*** (7.874)	0.321*** (8.005)	0.339*** (8.517)	0.392*** (7.390)	0.399*** (7.823)	0.400*** (7.979)	0.401*** (7.953)	-0.016 (-0.207)	0.087 (1.313)	0.098 (1.467)	0.167** (2.489)
Hard Peg (t-1)	0.340 (1.212)	0.372 (1.413)	0.286 (1.124)	0.268 (1.040)	0.783 (1.417)	0.798* (1.650)	0.781* (1.652)	0.706 (1.471)	0.407 (1.125)	0.532 (1.063)	0.264 (0.596)	0.240 (0.555)
Adj. Peg (t-1)	0.424** (2.088)	0.387** (2.045)	0.379** (2.027)	0.325* (1.741)	0.133 (0.510)	0.269 (1.088)	0.268 (1.105)	0.254 (1.030)	0.584 (1.597)	0.474 (1.094)	0.440 (1.070)	0.218 (0.565)
Narrow Float (t-1)	0.457* (1.867)	0.391* (1.719)	0.383* (1.748)	0.305 (1.383)	0.637** (2.226)	0.563** (2.114)	0.559** (2.187)	0.435* (1.693)	-0.306 (-0.571)	-0.560 (-0.853)	-0.433 (-0.715)	-0.367 (-0.622)
Trade Openness (t-1)	0.483*** (3.058)	0.431*** (2.920)	0.433*** (2.990)	0.389*** (2.657)	0.772*** (3.655)	0.683*** (3.549)	0.674*** (3.578)	0.618*** (3.253)	0.090 (0.204)	0.081 (0.139)	0.295 (0.555)	0.194 (0.375)
Term of Trade (t-1)	0.002 (0.882)	0.002 (0.950)	0.002 (1.023)	0.002 (1.059)	-0.005 (-0.550)	-0.005 (-0.603)	-0.005 (-0.674)	-0.007 (-0.920)	0.002 (0.730)	0.001 (0.618)	0.002 (0.797)	0.002 (0.996)
Real GDP Growth (t-1)	0.030** (2.368)	0.035*** (3.054)	0.035*** (3.158)	0.038*** (3.389)	0.076*** (2.825)	0.063*** (2.626)	0.062*** (2.725)	0.067*** (2.960)	0.025* (1.721)	0.031** (2.333)	0.030** (2.285)	0.031** (2.319)
U.S. T-Bill Rate (t-1)	-0.000 (-0.087)	0.000 (0.081)	0.000 (0.065)	0.001 (0.426)	-0.002 (-0.425)	0.000 (0.138)	0.001 (0.152)	0.001 (0.225)	0.003 (0.665)	0.001 (0.351)	0.001 (0.286)	0.003 (0.731)
Inflation (t-1)	-0.005 (-0.420)	-0.001 (-0.231)	-0.000 (-0.023)	-0.002 (-0.434)	-0.005 (-0.311)	-0.001 (-0.156)	-0.001 (-0.104)	-0.002 (-0.370)	0.015 (0.885)	-0.003 (-0.227)	0.001 (0.097)	-0.001 (-0.141)
Crisis Index (t-1)	0.083 (0.279)	0.219 (0.779)	0.234 (0.868)	0.124 (0.467)	0.196 (0.508)	0.329 (0.884)	0.373 (1.073)	0.144 (0.416)	-0.288 (-0.629)	-0.118 (-0.289)	-0.166 (-0.402)	-0.050 (-0.120)
Constant	-1.177*** (-3.295)	-1.172*** (-3.678)	-1.190*** (-3.810)	-1.113*** (-3.539)	-1.018 (-0.963)	-0.878 (-0.940)	-0.834 (-0.938)	-0.522 (-0.589)	-0.882* (-1.763)	-0.960* (-1.710)	-1.091** (-2.090)	-0.964* (-1.857)
R-Squared (overall)	0.843	0.849	0.848	0.846	0.816	0.819	0.819	0.815	0.893	0.888	0.887	0.882
Number of observations	374	410	423	432	226	245	253	256	148	165	170	176
Chi-Squared Statistic	1,940.925	2,234.548	2,288.436	2,312.477	950.514	1,052.921	1,088.456	1,078.315	1,133.003	535.032	638.700	721.910
Degrees of Freedom	11	11	11	11	11	11	11	11	11	11	11	11

Notes: All models are estimated using Panel OLS models with fixed effects. T-statistics are provided in parentheses below the coefficients. Models 1 and 2 use specifications of floating rates that respectively exclude (narrow) or include (broad) managed floats in the floating rate dummy variable. All varieties of crawling rates are combined (with managed floats, in Model 1 estimations) into an "Other Regimes" variable and dropped from the analysis in order to avoid matrix singularity. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 6. Model 2, M2 Growth WITH INFLATION THRESHOLDS

	<i>Full Sample</i>				<i>Emerging Markets</i>				<i>Developing Countries</i>			
	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
M2 Growth (t-1)	0.374*** (9.362)	0.383*** (11.305)	0.388*** (11.669)	0.400*** (12.171)	0.461*** (8.774)	0.408*** (11.031)	0.409*** (11.007)	0.427*** (12.012)	0.250*** (3.754)	0.281*** (4.170)	0.302*** (4.534)	0.313*** (4.721)
Hard Peg (t-1)	-6.930*** (-4.186)	-5.859*** (-3.263)	-4.655** (-2.562)	-4.834** (-2.537)	-6.619*** (-2.609)	-5.488** (-2.120)	-5.442** (-1.981)	-6.164** (-2.137)	-8.273*** (-2.976)	-6.308** (-2.040)	-3.744 (-1.228)	-3.289 (-1.038)
Adj. Peg (t-1)	-1.449 (-1.160)	-1.050 (-0.784)	-0.609 (-0.445)	-0.416 (-0.292)	-2.411 (-1.620)	-3.647** (-2.368)	-3.081* (-1.918)	-3.366** (-1.998)	1.836 (0.634)	4.228 (1.456)	5.097* (1.741)	6.217** (2.125)
Broad Float (t-1)	-0.861 (-0.770)	-1.609 (-1.345)	-0.898 (-0.741)	-0.817 (-0.650)	-1.729 (-1.327)	-3.176** (-2.352)	-2.562* (-1.843)	-2.886** (-1.989)	2.282 (1.026)	1.530 (0.647)	2.423 (1.020)	3.124 (1.288)
Trade Openness (t-1)	-0.511 (-0.634)	-0.497 (-0.554)	-0.709 (-0.768)	-0.751 (-0.775)	-0.352 (-0.376)	-0.255 (-0.254)	-0.776 (-0.734)	-0.916 (-0.828)	6.133** (2.118)	4.296 (1.334)	3.199 (0.987)	2.875 (0.862)
Term of Trade (t-1)	-0.000 (-0.035)	-0.004 (-0.299)	-0.005 (-0.333)	-0.008 (-0.506)	-0.024 (-0.582)	-0.028 (-0.625)	-0.018 (-0.412)	-0.010 (-0.205)	0.005 (0.341)	-0.000 (-0.018)	-0.002 (-0.105)	-0.004 (-0.222)
Real GDP Growth (t-1)	0.218*** (3.167)	0.058 (0.813)	0.011 (0.147)	0.006 (0.081)	0.270** (2.046)	0.194 (1.516)	0.045 (0.345)	-0.013 (-0.100)	0.158* (1.676)	0.017 (0.174)	-0.009 (-0.085)	0.019 (0.182)
U.S. T-Bill Rate (t-1)	0.010 (0.625)	-0.004 (-0.259)	-0.007 (-0.375)	-0.013 (-0.709)	0.001 (0.037)	-0.003 (-0.174)	-0.006 (-0.293)	-0.008 (-0.416)	0.017 (0.577)	-0.011 (-0.326)	-0.008 (-0.249)	-0.016 (-0.471)
Fiscal Balance (t-1)	-0.254** (-2.234)	-0.323*** (-2.671)	-0.327*** (-2.625)	-0.342*** (-2.634)	-0.314* (-1.826)	-0.398** (-2.208)	-0.314* (-1.659)	-0.263 (-1.329)	-0.413** (-1.968)	-0.542** (-2.560)	-0.588*** (-2.758)	-0.669*** (-3.069)
Crisis Index (t-1)	3.406** (2.163)	3.603** (2.174)	4.887*** (2.952)	4.119** (2.440)	3.349** (1.967)	3.209* (1.768)	5.859*** (3.234)	4.671** (2.479)	2.282 (0.758)	3.457 (1.127)	3.403 (1.086)	3.538 (1.143)
Constant	8.568*** (4.330)	9.990*** (4.741)	9.890*** (4.599)	10.187*** (4.556)	9.490** (2.130)	12.277*** (2.661)	12.098** (2.557)	11.793** (2.420)	4.048 (1.136)	5.691 (1.483)	5.525 (1.451)	5.246 (1.333)
R-Squared (overall)	0.321	0.328	0.322	0.331	0.415	0.462	0.444	0.460	0.304	0.255	0.241	0.250
Number of observations	395	437	453	463	239	260	271	274	156	177	182	189
Chi-Squared Statistic	181.701	207.588	210.374	223.553	161.533	213.696	207.904	223.637	63.266	56.851	54.374	59.324
Degrees of Freedom	10	10	10	10	10	10	10	10	10	10	10	10

Notes: All models are estimated using Panel OLS models with fixed effects. T-statistics are provided in parentheses below the coefficients. Models 1 and 2 use specifications of floating rates that respectively exclude (narrow) or include (broad) managed floats in the floating rate dummy variable. All varieties of crawling rates are combined (with managed floats, in Model 1 estimations) into an "Other Regimes" variable and dropped from the analysis in order to avoid matrix singularity. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 7. Model 2, Inflation WITH INFLATION THRESHOLDS

	<i>Full Sample</i>				<i>Emerging Markets</i>				<i>Developing Countries</i>			
	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Inflation (t-1)	0.502*** (18.868)	0.485*** (20.890)	0.529*** (22.172)	0.596*** (24.301)	0.626*** (18.805)	0.462*** (15.423)	0.567*** (17.575)	0.608*** (19.857)	0.379*** (6.909)	0.510*** (9.593)	0.477*** (8.867)	0.547*** (8.600)
Inflation (t-2)	-0.010*** (-5.824)	-0.019*** (-9.979)	-0.022*** (-9.991)	-0.024*** (-10.126)	-0.013*** (-8.137)	-0.017*** (-8.197)	-0.023*** (-9.583)	-0.024*** (-10.005)	0.006 (0.189)	-0.018 (-0.418)	-0.014 (-0.272)	0.008 (0.140)
Hard Peg (t-1)	-3.407*** (-5.536)	-4.098*** (-4.714)	-3.847*** (-3.984)	-3.874*** (-3.622)	-3.207*** (-3.308)	-5.126*** (-3.794)	-5.199*** (-3.216)	-5.174*** (-3.151)	-3.952*** (-4.063)	-3.837*** (-3.023)	-3.502** (-2.350)	-3.568** (-1.986)
Adj. Peg (t-1)	-0.837* (-1.785)	-1.505** (-2.348)	-1.727** (-2.369)	-1.159 (-1.450)	-0.697 (-1.250)	-2.520*** (-3.150)	-1.413 (-1.512)	-1.315 (-1.385)	0.038 (0.038)	-0.402 (-0.333)	-1.208 (-0.835)	0.278 (0.165)
Broad Float (t-1)	-0.806* (-1.942)	-2.065*** (-3.653)	-1.950*** (-3.034)	-1.829*** (-2.584)	-0.405 (-0.832)	-2.558*** (-3.680)	-1.473* (-1.836)	-1.341* (-1.652)	-0.141 (-0.175)	-1.446 (-1.441)	-1.829 (-1.528)	-1.927 (-1.372)
Trade Openness (t-1)	-0.654** (-2.140)	-1.356*** (-3.060)	-1.850*** (-3.729)	-1.712*** (-3.123)	-0.403 (-1.157)	-1.026** (-1.986)	-1.710*** (-2.804)	-1.604*** (-2.592)	1.777* (1.744)	-0.048 (-0.036)	-1.883 (-1.170)	-2.153 (-1.107)
Term of Trade (t-1)	0.002 (0.326)	-0.005 (-0.851)	-0.011 (-1.443)	-0.011 (-1.259)	-0.012 (-0.816)	-0.019 (-0.823)	-0.057** (-2.193)	-0.043 (-1.640)	0.001 (0.254)	-0.004 (-0.564)	-0.009 (-1.035)	-0.011 (-0.979)
Real GDP Growth (t-1)	0.001 (0.037)	0.001 (0.037)	-0.003 (-0.068)	-0.008 (-0.195)	0.111** (2.452)	0.006 (0.091)	0.017 (0.229)	-0.022 (-0.296)	-0.033 (-0.887)	-0.008 (-0.174)	-0.002 (-0.034)	-0.014 (-0.209)
U.S. T-Bill Rate (t-1)	0.001 (0.167)	0.008 (1.004)	0.004 (0.481)	-0.005 (-0.473)	0.005 (0.806)	0.010 (1.117)	0.014 (1.296)	0.011 (1.021)	-0.007 (-0.643)	0.002 (0.165)	0.000 (0.002)	-0.022 (-1.084)
Fiscal Balance (t-1)	-0.051 (-1.180)	0.001 (0.024)	0.072 (1.065)	0.050 (0.671)	-0.119* (-1.817)	-0.099 (-1.023)	0.050 (0.446)	0.045 (0.393)	-0.063 (-0.849)	0.024 (0.272)	0.078 (0.739)	0.030 (0.237)
Crisis Index (t-1)	2.205*** (3.823)	2.826*** (3.825)	3.699*** (4.256)	3.913*** (4.123)	1.965*** (3.174)	2.257** (2.441)	4.188*** (4.038)	4.294*** (4.125)	1.771* (1.668)	3.119** (2.442)	3.015* (1.949)	3.235* (1.800)
Constant	3.690*** (4.937)	6.738*** (6.966)	7.811*** (6.884)	7.022*** (5.578)	3.075* (1.850)	8.172*** (3.417)	11.540*** (4.138)	9.721*** (3.499)	2.873** (2.243)	5.331*** (3.329)	8.231*** (4.326)	7.601*** (3.302)
R-Squared (overall)	0.610	0.628	0.619	0.649	0.741	0.654	0.684	0.729	0.507	0.605	0.542	0.572
Number of observations	395	437	453	463	239	260	271	274	156	177	182	189
Chi-Squared Statistic	590.775	673.318	706.637	835.350	649.273	468.347	561.558	706.041	147.963	252.842	201.533	236.293
Degrees of Freedom	11	11	11	11	11	11	11	11	11	11	11	11

Notes: All models are estimated using Panel OLS models with fixed effects. T-statistics are provided in parentheses below the coefficients. Models 1 and 2 use specifications of floating rates that respectively exclude (narrow) or include (broad) managed floats in the floating rate dummy variable. All varieties of crawling rates are combined (with managed floats, in Model 1 estimations) into an "Other Regimes" variable and dropped from the analysis in order to avoid matrix singularity. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table 8. Model 2, Fiscal Balance WITH INFLATION THRESHOLDS

	<i>Full Sample</i>				<i>Emerging Markets</i>				<i>Developing Countries</i>			
	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50	Threshold: 20	Threshold: 30	Threshold: 40	Threshold: 50
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Fiscal Balance (t-1)	0.470*** (9.447)	0.464*** (10.432)	0.463*** (10.535)	0.456*** (10.354)	0.303*** (5.052)	0.320*** (5.669)	0.320*** (5.762)	0.332*** (5.941)	0.869*** (9.509)	0.687*** (9.232)	0.692*** (9.336)	0.661*** (8.796)
Fiscal Balance (t-2)	0.308*** (6.998)	0.323*** (7.949)	0.325*** (8.085)	0.342*** (8.598)	0.399*** (7.435)	0.406*** (7.895)	0.407*** (8.053)	0.406*** (8.017)	-0.017 (-0.209)	0.090 (1.341)	0.098 (1.459)	0.174** (2.569)
Hard Peg (t-1)	0.392 (1.269)	0.402 (1.403)	0.307 (1.112)	0.259 (0.926)	0.652 (1.139)	0.750 (1.514)	0.735 (1.514)	0.681 (1.386)	0.309 (0.739)	0.457 (0.857)	0.183 (0.375)	0.057 (0.133)
Adj. Peg (t-1)	0.482** (2.012)	0.424* (1.930)	0.407* (1.889)	0.321 (1.492)	0.161 (0.467)	0.340 (1.088)	0.331 (1.091)	0.316 (1.026)	0.493 (1.141)	0.408 (0.815)	0.354 (0.742)	0.105 (0.258)
Broad Float (t-1)	0.244 (1.174)	0.192 (1.004)	0.178 (0.961)	0.101 (0.539)	0.257 (0.882)	0.287 (1.090)	0.274 (1.088)	0.230 (0.907)	-0.189 (-0.560)	-0.173 (-0.443)	-0.202 (-0.543)	-0.262 (-0.792)
Trade Openness (t-1)	0.418*** (2.710)	0.378*** (2.597)	0.382*** (2.664)	0.350** (2.417)	0.646*** (3.034)	0.582*** (2.936)	0.573*** (2.968)	0.540*** (2.777)	0.133 (0.308)	0.141 (0.254)	0.347 (0.663)	0.253 (0.555)
Term of Trade (t-1)	0.002 (0.814)	0.002 (0.895)	0.002 (0.976)	0.002 (1.028)	-0.009 (-1.002)	-0.009 (-1.019)	-0.009 (-1.040)	-0.010 (-1.213)	0.002 (0.695)	0.001 (0.613)	0.002 (0.764)	0.003 (1.095)
Real GDP Growth (t-1)	0.030** (2.328)	0.035*** (3.017)	0.035*** (3.094)	0.037*** (3.314)	0.070*** (2.577)	0.058** (2.436)	0.057** (2.489)	0.062*** (2.777)	0.024* (1.683)	0.031** (2.331)	0.029** (2.255)	0.031** (2.351)
U.S. T-Bill Rate (t-1)	-0.001 (-0.240)	-0.000 (-0.043)	-0.000 (-0.021)	0.001 (0.340)	-0.002 (-0.504)	0.000 (0.049)	0.000 (0.134)	0.001 (0.217)	0.003 (0.698)	0.001 (0.360)	0.001 (0.282)	0.003 (0.675)
Inflation (t-1)	-0.006 (-0.498)	-0.001 (-0.242)	-0.000 (-0.041)	-0.002 (-0.464)	-0.010 (-0.587)	-0.001 (-0.207)	-0.001 (-0.208)	-0.003 (-0.446)	0.017 (0.939)	-0.002 (-0.165)	0.001 (0.125)	0.000 (0.038)
Crisis Index (t-1)	0.040 (0.133)	0.175 (0.621)	0.195 (0.719)	0.105 (0.391)	0.086 (0.222)	0.228 (0.610)	0.277 (0.795)	0.083 (0.239)	-0.330 (-0.728)	-0.150 (-0.364)	-0.187 (-0.453)	-0.073 (-0.172)
Constant	-1.157*** (-3.076)	-1.149*** (-3.465)	-1.159*** (-3.571)	-1.063*** (-3.255)	-0.381 (-0.372)	-0.398 (-0.430)	-0.407 (-0.464)	-0.186 (-0.213)	-0.815 (-1.498)	-0.933 (-1.589)	-1.045* (-1.877)	-0.846 (-1.636)
R-Squared (overall)	0.842	0.848	0.847	0.846	0.813	0.816	0.816	0.814	0.893	0.889	0.887	0.883
Number of observations	374	410	423	432	226	245	253	256	148	165	170	176
Chi-Squared Statistic	1,927.645	2,221.761	2,274.536	2,301.968	928.313	1,035.145	1,068.995	1,067.372	1,132.893	586.636	650.312	980.603
Degrees of Freedom	11	11	11	11	11	11	11	11	11	11	11	11

Notes: All models are estimated using Panel OLS models with fixed effects. T-statistics are provided in parentheses below the coefficients. Models 1 and 2 use specifications of floating rates that respectively exclude (narrow) or include (broad) managed floats in the floating rate dummy variable. All varieties of crawling rates are combined (with managed floats, in Model 1 estimations) into an "Other Regimes" variable and dropped from the analysis in order to avoid matrix singularity. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.